IS THERE STILL VALUE IN STRATEGIC GROUP RESEARCH?

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Abstract

This paper offers a selected review of strategic group theory and seeks to explore the benefits and limitations of modern strategic group analysis within the context of the Pharmaceutical Industry. The rise and fall of strategic group research is reviewed and some suggestions advanced as to the reasons why strategic group research has often produced conflicting results, particularly with regard to the link between group membership and performance. The review concludes that strategic group research continues to offer a valuable way to classify firms by their strategy and provides some suggestions as to how future studies may avoid the pitfalls exposed by previous research.

[104 words]

Introduction

Classification or the grouping of items into categories based on their similarity is an enduring human trait and one that perhaps explains some of the attraction of strategic group theory. This theory, began with an observation in 1972 [1], that occupied a central theme in strategic group literature throughout the following two decades but which enjoys less popularity today. Why then did strategic group theory fall from grace and is the concept still of value today?

This paper offers a selected review of strategic group theory and seeks to explain the benefits and limitations of modern strategic group analysis within the context of the Pharmaceutical Industry. A medium sized but highly profitable industry noted for its investment in research and product differentiation [2]that has been the focus of a number of strategic group studies [3-9]. Here, is an industry where given the long lead times and risks taken strategy should matter. Therefore if strategic group membership does indeed confer performance differences these should be visible within the pattern of strategic activity conducted by Pharmaceutical firms.

The Rise and Fall of Strategic Group Theory.

The idea of strategic groups began with the observation by Hunt that groups of firms pursuing different strategies were present in the US White Goods Industry [1]. This observation was interesting because it was contrary to existing industrial organisation [IO] theory, which proposed that for a given industry, there was an optimal strategy that all firms would pursue and where the only significant difference between firms was the relative application of scale [10, 11]. Strategic group theory therefore, offered

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both a new line of enquiry and the opportunity to disprove the structure conduct performance paradigm. This perhaps was one of the reasons why strategic group theory diffused so rapidly into current strategy thinking. In addition, strategic group theory appealed to our natural taxonomic tendencies offering IO scholars the means to deconstruct industries and strategic management scholars the opportunity to compare groups of firms in terms of their strategies. In fact, the most popular definition of strategic groups, reiterates this view. "A strategic group is the group of firms in an industry following the same or a similar strategy along the strategic dimensions" [12]. With the discovery of strategic groups, research basically headed in two directions either in search of theory to explain the phenomenon or to prove the existence of strategic groups empirically within a variety of industries. Search for theory resulted in not one but two complementary theories, that underpin strategic group theory to the present day. The first of these "twin pillars" addresses the question of how different strategic group strategies can profitably persist within an industry setting, without being eroded away through firms invading the strategic group from outside [13]. By borrowing an idea from IO economics, strategic groups are portrayed as a series of walled enclaves resembling medieval fortress cities where intra-industry bulwarks or mobility barriers act to prevent entry from competitors. These were originally thought to arise as a result of joint investments by member companies' that through their collective actions raised barriers to competition through investment in joint advertising or research, leading to higher profits through differentiation. To date, empirical research supports the existence of such mobility barriers [14] but evidence of the proposed mechanism is lacking. In reality however, does it really matter if mobility barriers are built through collective action or simply as the above definition suggests [12] through firms pursuing effectively similar strategies where a leading

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group member may act as a reference point [15] or benchmark leading to mimicry?
The end result is an effective mobility barrier, such as large sales forces mopping up
available doctor appointments in the Pharmaceutical Industry that could result from
either mechanism.

The implications of mobility barriers are threefold. Firstly, that a hierarchy of
strategic groups may exist, where strategic groups of higher profit potential are
protected by higher mobility barriers. This leads to the suggestion that an evolutionary
pathway may exist across an industry, with firms entering the industry where barriers
are lowest before gaining experience and developing competences, which allows
successful assault on the next most advantageous industry position. Second is the idea
that environmental changes will not affect all strategic groups equally due to their
differing levels of protection. Thirdly, that many of the factors that render imitation
difficult are tacit in nature or due primarily to proprietary information [16]. Here the
links to the resource-based view of the firm [17-20] are clearly apparent and it has
been suggested that lack of mobility between groups is due more to firms history and
their individual accumulated asset base then to cumulative mutual investments [21].
In summary, strategic groups have been shown to be stable intra-industry structures
[3, 5, 22, 23] that are intrinsically linked to mobility barriers. Here, some researchers
define strategic groups principally in terms of mobility barriers [12, 14]. Mascarenhas
for example, remarks that mobility barriers are the core of the strategic group concept
and defines strategic groups as "a grouping of businesses within an industry that is
separated from other groupings of businesses by mobility barriers, barriers to entry
and exit" [14].

The second pillar of strategic group theory is the theory of intra-industry competition [24] which again borrows heavily from the SCP paradigm suggesting that relative size of firms acts to either encourage collusion or lead to greater rivalry. Here, Porter suggests that firms of similar size whose fortunes are closely intertwined through addressing common markets in the same type of way are far less likely to compete away their profits through internecine rivalry than firms who offer closely related or substitute products but compete on markedly different bases. Unlike mobility barrier theory that has been substantially supported by empirical work, the idea that strategic group membership has performance implications has met with mixed results. Some researchers claiming to uncover a performance difference between groups [3, 23, 25, 26] others failing to find it [6, 27]. Conflicting results, taken by some researchers to imply that strategic groups did not exist and were an ephemeral concept, a result of faulty methods of detection, rather than naturally occurring intra-industry structures [28-30]. This a reference to the frequent use of clustering algorithms to identify groups and the ad hoc, frequently rule of thumb methods, used to select variables with which to define them

Therefore, based upon these two complementary theories, strategic groups may be described as "stable intra-industry structures" separated by mobility barriers in pursuit of different strategies that may be expected to yield significant performance differences in terms of outcome. More recently it has been suggested that group cohesion is a third necessary parameter for strategic groups where it is argued that natural strategic groups should exhibit a cohesive group identity and evidence of interdependence. This leads, for example to strong differentiation through co-operative advertising or joint research projects leading to knowledge asymmetries, which is a necessary condition for tenable strategic groups to exist [31].

In conclusion, the strategic group concept achieved rapid acceptance because it challenged accepted theory and offered both IO and strategic management scholars a different lens through which to work. The promise of a relationship between strategic choice and performance was intrinsically attractive to strategic management researchers. To date however, the link between performance and strategic group membership has not been conclusively proven empirically. In the next section the possible reasons for a lack of consistent results are discussed.

Why have consistent results not been obtained?

One reason for the lack of consistency between the results of empirical studies is perhaps due to the different perspective taken by IO and strategic management researchers. The approach taken by the industrial organization researchers owes much to the SCP paradigm and can be summarized as short -term multi industry studies with often one and certainly no more than a handful of variables used to identify strategic groups. Here the work of Porter may be taken as a typical example where firms from 43 consumer industries were divided into two strategic groups of leaders or followers based on size which, was the sole variable used as a proxy for strategy [32]. In contrast the majority of strategic management studies focused upon one industry, often encompassed a number of years and adopted a multivariate approach with a number of variables frequently being used to describe scope resource and scale commitments [3, 5, 6]. Thus the coarse-grained cross industry approach of IO research is in stark contrast to the fine-grained strategic management approach and the incompatibility of these two approaches provides one possible explanation for a lack of consistent results, particularly within the early studies. Here the idea of strategy being industry specific or comparable across industries is a key point. It is argued that

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strategy represents a pattern of choices those activities that you choose to pursue as against the myriad of options you discard [33]. This implies that strategies are context specific, as choice will always be bounded by, available resources, the competitive position, management attitude to risk and industry structure. Therefore to compare across industries and to attempt to classify firm strategies at this level is likely at best to distinguish only very broad differences between firms' approaches to strategy distinguishing perhaps between "generic strategies" [12] but not actual strategies. This practice of comparing at too broad a level may result in the subtleties of strategy that lead to performance differences between firms, perhaps being missed and if we accept that strategic choice is context specific then the most appropriate level for strategic group research is the industry.

The second probable cause of a lack of agreement between studies is the almost universal lack of agreement as to choice of variables where even between studies seeking to investigate similar strategic dimensions for example scope or resource commitments there is little if any congruence of choice [3, 6]. A point illustrated in table 1.

INSERT TABLE 1

ABOUT HERE

This table compares the variables used to describe strategy in two strategic group studies centred on the Pharmaceutical Industry [3, 6]. Two studies that attempt to describe strategy in terms of scale, scope and resource commitments and adopt a very

similar method. Both studies use Ward's cluster analysis[1] technique and measure

performance based on market share and weighted market share[2] but both achieve very

different results. Cool studied strategic groups within the US Pharmaceutical market

over a 20-year period and identified strategic groups using 15 variables [3] in contrast

Marten's identifies strategic groups within the Pharmaceutical Industry in 5 E.C.

countries, over an 8-year period using only 6 variables [6]. Here it is interesting to

note that there is little congruence between the actual variables chosen even when

exploring a similar strategy dimension. For example, Marten's describes breadth of

focus based upon the firms' top 2 therapeutic areas while Cool chose the top 3. Why

the different choice of variables? Surely the Pharmaceutical Industry is a global

industry where due to the high research costs of $700m per new chemical entity

[NCE] in order to recoup costs before patent expiry firms are forced to market

globally where cost of promotion adds a further $400m to effectively market the new

product within all the world's major markets [34]. In a global industry the key

strategic choices must surely be common across national boundaries. Therefore a

priority for strategic group research must be to identify the set of variables that

accurately reflect strategic choice within that industry. This is critical to achieving

comparable results, as one of the criticisms of strategic group research is over reliance

on clustering techniques where the algorithm chosen will produce clusters but not

distinguish between whether a no cluster solution is preferable to splitting the data

[28]. Thus the researchers judgement is the determining factor to answer the question

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[1] Wards technique is an agglomerative hierarchical clustering method that forms clusters on the basis of minimising within group variance.
[2] Weighted market share recognises that some companies may choose to dominate a few selected market segments and is measured by the sum of firm sales in therapy class i divided by total firm sales and multiplied by firm sales of therapy class i divided by total market sales of therapy class i 6.
    Martens, R., Strategic Group Formation and Performance. The Case of the Pharmaceutical Industry in Five E.C. Countries 1978-1985, in *Faculty of Applied Economics*. 1988, UFSIA Antwerp University: Antwerp. p. 402. Page 249

as to whether the clusters obtained accurately reflect strategic choice within the industry.

Porter suggests mapping strategic groups using the principle mobility barriers as variables as a simple and robust method of identifying strategic groups within an industry [12]. Here, for example mapping sales force expenditure against research spend has been shown to produce clear and relevant strategic groups within the Pharmaceutical Industry [35].This could perhaps be a useful exploratory step to describe the relationships within the data before employing a clustering technique to explore the strategic choice relationships in more detail. When employing any clustering technique however, it should be noted that "it is probably the choice of variables that has the greatest influence on the ultimate results of a cluster analysis" [36].

A third reason for lack of consistency may be due to the lack of consistent method within strategic group research. Research into the use of clustering techniques within strategic management points to a number of common flaws in method and found that only 7% of studies followed a robust procedure [37]. Here common errors include the use of only one clustering technique, where the recommendation is to use an agglomerative technique in conjunction with a divisive technique to check the consistency of the cluster obtained. In neither of the two pharmaceutical studies cited earlier was this procedure carried out. Cool used Wards method together with the complete linkage method, both of which are agglomerative techniques that essentially are very similar. Ward minimises variance within groups while complete linkage maximises the distance between the most dissimilar members of adjacent clusters. Marten's employed only Wards technique. The second common error is to include variables that are strongly correlated within the data set this has the effect of

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strengthening the influence of these variables in comparison to the remaining

variables and therefore may skew the result obtained. In the two studies used as our

example, both include total sales that may be expected to correlate strongly with the

FOCUS variable that measures the proportion of sales from the top 2 or three

therapeutic groups. The inclusion of total sales, which has been has commonly

included in strategic group research, may be questioned on two grounds. First, sales is

an outcome not a strategic choice variable although it can be argued that many

decisions, such as how much to spend on research, may be scale dependent. Second,

in attempting to measure performance between groups in terms of market share,

separating groups on the basis of size may appear tautological.

To conclude, the lack of consistent performance results may be at least partially

explained through a lack of a consistent reproducible method, the contrasting

perspectives taken between the IO and strategic management researchers, and the lack

of a consistent set of variables used to operationalised strategy even in similar studies

looking to explore strategic groups within the same industry.

Do natural strategic groups clusters exist? Evidence from the Pharmaceutical

Industry.

Much of the criticism leveled against the strategic group concept stems from criticism

of the method particularly the application of clustering techniques to separate strategic

groups based on a selection of quantitative variables. Support for the existence of

strategic groups is found in cognitive studies which rather than measuring post hoc

decision variables employ interview techniques to ascertain intended strategic action.

Here, research conducted in a number of different industries identified cognitive

groupings broadly equivalent to strategic groups, which supports the conclusion that strategic groups or relatively stable intra-industry structures do exist. Here managers "mental models" define both the competitive arena in terms of what companies represent close rivals and what the accepted "rules of engagement" or ways to compete are [38, 39]. Of course cognitive studies are not without flaws and it is worth noting that the limited number of observations on which these studies are based and the sensitivity of results to participant selection should be taken into account. Evidence from cognitive studies does however support the presence of intra-industry groupings whether defined on the basis of ante hoc strategic intent or post hoc strategic action.

Particularly compelling evidence comes from the Pharmaceutical Industry where the findings of a number of long-term strategic group studies utilizing cluster analysis to identify groups [3, 6, 9, 21, 26] have been supported by cognitive studies that point to the consistent presence of strategic groups [8, 9]. For example Osborne studying thematic groups within the US Pharmaceutical Industry extracted themes of strategic intent from annual reports for pharmaceutical companies between 1963 and 1982 identifying the presence of intra-industry groups similar to those reported by Cool [8]. In effect this study cross checks the findings of Cool's 1985 study over the same period through employing a very different method. It is compelling evidence in favour of strategic groups within the Pharmaceutical Industry that the earlier findings of Cool are broadly reproducible by a different method.

In conclusion, despite concerns that strategic groups may be a mere artifact of method [28], evidence from the pharmaceutical industry suggests a relatively stable intra-industry structure measured consistently in studies of up to 20-years duration [3, 5,

21, 26]. Presence supported by and strongly correlated with more recent cognitive research [8, 9].

The issue of a link between strategic group membership and performance however still remains to be clarified where the Pharmaceutical Industry offers an interesting avenue for research. If we consider that the Pharmaceutical Industry is consistently one of the highest performing industries in the world [40] where given the enormous costs of research and the high degree of risk, strategy should link to performance. Therefore if strategic group analysis provides an accurate classification of strategic choice there should by definition be a performance difference between strategic groups. Certainly the stock market values companies with similar asset stocks differently quoting reference to previous results and the experience of the management [2, 41].

In contrast an examination of empirical strategic group research within the pharmaceutical industry reveals conflicting results, some studies reporting significant performance differences between groups [9, 26, 42], others finding no significant performance difference between strategic groups [7] [21]. To explain these differences the fact that none of the studies cited employed a common set of variables is one cause. A second possible cause may be the lack of a consistent reproducible method to differentiate groups. Finally what constitutes performance is a thorny issue and with the exception of the studies by Cool and Martens each researcher has chosen different performance variables to measure.

Conclusions.

Strategic group research offers the opportunity to classify strategy within a given industry that in turn, provides the base for the testing of theories related to strategic choice between strategic groups. To accurately reflect strategic choice the first critical choice is the set of variables, which should be industry specific and describe sufficient dimensions to represent the pattern of strategic activity within the industry. It is important to realize that to obtain comparable results between strategic group studies it is necessary to describe strategic groups on similar terms. Therefore, for each industry research should attempt to identify the set of variables that best describe strategic choice within that industry and to incorporate as much as possible the variables used in previous research to aid comparison.

In the critical choice of variables, the clarity of the cluster solution may be compromised if too many variables are included therefore it is important to understand the relationship between the variables and develop a prior theory as to why those particular strategic choices are important and how they would link to performance. Here the advice of Porter to choose variables that represent key mobility barriers is useful and this approach has been employed to identify strategic groups within the UK pharmaceutical industry [35]. The aim should be to replicate clear strategic action by carefully selecting the right strategic choices from the myriad of possible options. The selection of variables should therefore be parsimonious and based upon prior theory but not so restrictive as to fail to accurately represent the pattern of strategic choice within the given industry.

Thirty years on, the promise of strategic group research to provide a robust theoretical taxonomy of industry strategy is still valid. A classification system that is useful to

separate firms into meaningful groups as a basis for further research or as a means to make sense of and map industry dynamics over time. Here, a useful application for industry managers is to spot future viable market positions and chart company strategy toward them or to explore the possible future competitor moves by examining the implications of the unoccupied spaces on a strategic group map [43].

In fact, one of the problems of modern competitive analysis is how to cope with the increasingly diverse and rich data available for analysis and turn it into actionable information. The application of strategic mapping techniques to clarify the relationship between various data sources may be invaluable for this purpose.

Within strategic group research the more recent emphasis has been upon the resource-based view of the firm [17-20] the view that what we are determines what we can do. This approach is in many ways complimentary to and not contradictory to strategic group theory because the detailed history of a firm in many ways shapes strategic investments which, is what is primarily captured through strategic group analysis. The life-blood of a taxonomic system is the data to classify cases and here the rich description of asset stocks and strategic choices emanating from the resource-based perspective may provide useful complements to strategic groups, particularly when attempting to explain differences within groups. Here, some of the earlier strategic group research appears complementary to this view. For example, the relationship between asset stocks and performance [44, 45], or the relationship between risk and performance [42].

In conclusion the strategic group concept is an idea that appealed to both strategic management and industrial organization researchers because it offered a new perspective on industry structure and competitive strategy. Differences in perspective, that to some extent set the seeds for much of the conflicting evidence from early

research. The ability to classify and compare firms in terms of their strategies does however have an intrinsic appeal to strategic management researchers but in order to capitalize upon the promise of strategic group research it is important to work from sound foundations.

The guidelines suggested by a selective examination of past research are as follows. Firstly, the variables chosen to represent strategy should be industry specific and a sound theoretical reason given for inclusion and exclusion. Secondly, wherever possible research should take previous research as a start point for variable selection, this should encourage the development of industry specific comprehensive data sets that represent strategic choice in that industry. Thirdly, to explore the relationships between variables strategic mapping is to be recommended this also acts as a cross check against multicollinearity. Fourthly if cluster analyses are to be employed the data sets should be standardized to remove the scale effects, or a scale independent method selected and two cluster analyses should be conducted employing both agglomerative and divisive methods to cross check the result. Finally the research will benefit from a sound theoretical premise prior to the analysis as to what the groups represent. This should suggest the correct set of performance variables to test the posited relationship, which should be comprehensive so as to explore the relationship but also parsimonious so as not to include spurious results.

Thus the application of sound industry specific strategic group research offers a valuable means to classify and make sense of competitive dynamics. This is complementary to ongoing strategic management research and equally useful to practicing managers wishing to understand and anticipate the strategic moves of their competitors.

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TABLE 1

VARIABLES SELECTED

Strategic Group Variables Cool (1985)		Strategic Group Variables Martens (1988)	
			NB: All Marten's variables refer to 4 year totals
Rx	% prescription [Rx] sales in total domestic drug sales	PROXIMITY	The rank order of the cluster to which the firm belongs, derived from a cluster analysis on the basis of the percentage sales in each of the 12 therapeutic classes.
DRUGST	% drug store sales in total domestic drug sales		
BRANGEN	% branded generic Rx sales in total domestic Rx sales		
COMMGEN	% commodity generic sales in total domestic Rx sales		
MAINT	% maintenance drug sales in total domestic Rx sales		
FOCUS	(Rx sales in 3 largest therapeutic categories)/(total domestic Rx sales)	FOCUS	(Rx sales in 2 largest therapeutic categories)/(total firm sales)
FOREIGN	% total firm sales generated abroad	GEOG	(Max of sales of firm in one of the five countries)/(total firm sales)
RDS	(total firm R&D)/(Worldwide health care sales)		
RDEFFS	(No of NDAs submitted)/(No of INDs)		
RDORIENT	(NCEs approved/NCEs submitted)		
PRODSTR	(No of NCEs)/(Total No of New Products)	INNOVATE	(Sales of products less than 2 years old)/(Total firm sales)
PROFPROM	(total domestic professional promotion)/ (total domestic Rx sales)	PROMOTION	(Total promotion) / (Number of products introduced in the last 2 years)
CONSADV	(total domestic consumer promotion) / (total domestic Rx sales)		
DISTR	% of total domestic drug sales shipped directly to drug stores and hospitals		
SIZE	LN (Total domestic drug sales)	LOYALTY	LN (Total domestic drug sales)